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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,419	03/20/2001	Masaya Ogura	862.C2151	9530

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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,419

Applicant(s)

OGURA ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 10/22/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12/10/03.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 10-11, 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (U.S.Pat. 6,266,133) in view of Semba (U.S.Pat. 6,133,981) and further in view of Aoki (JP-405210049A).

With respect to claims 1-8, and 10-11, and 16-22, Osakabe et al teaches a projection optical system comprising substantially all of the limitations of the instant claims as set forth above such as: an illumination optical system (2) for irradiating a reticle (4) including a light source (1); a reticle stage for supporting the reticle; a projection optical system (6) for projecting a pattern formed on the reticle onto the substrate (5); and a substrate stage for supporting the substrate (see fig.1), at least one chamber (110) for internally accommodating the illumination optical system, the reticle stage, the substrate stage. Osakabe (fig.6) further teaches pressure sensors (33, 34) for monitoring the pressure inside and the pressure outside of the chamber (6) which encloses the projection optical system and a controller (35) for controlling and maintaining the pressure inside and pressure outside of the chamber (6) at a predetermined level. The inside of the chamber is supplied with inert gas such as nitrogen, argon, or helium to correct

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optical characteristics of the projection optical system based on the pressure inside the chamber. Osakabe does not expressly disclose the pressure inside the chamber higher than the pressure outside the chamber. Semba discloses an processing system comprising a first unit that accommodates an exposure apparatus for transferring a pattern formed on a mask onto a substrate; a second unit which is a coating and developing unit and a connection unit (13) placed between the first and second unit. For the purpose of preventing the contamination caused by the particles, organic solvent from the outside atmospheric may flow into the exposure apparatus, Semba teaches the pressure in the exposure apparatus (S) is set higher than the pressure in the coating and developing unit (see fig.4). In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the pressure inside the chamber higher than the ambient pressure to avoid contamination of the exposure apparatus and thus to improve the quality of the images to be printed. However, Osakabe as modified by Semba lacks to disclose the optical characteristics of the projection optical system being corrected based upon the pressure inside the chamber. Aoki teaches correcting the characteristics of the projection optical system (23) based upon the detected pressure by pressure sensor (19) and moving at least one of the refractive lenses of the projection optical system along optical axis for the purpose of changing the optical characteristics is well known in the art. It would have been obvious to a skilled artisan to combine the teachings of Osakabe as modified by Semba and Aoki to obtain the invention as specified in claim 8 for the purpose of correcting the characteristics of the projection optical system whereby improving the quality of the exposure apparatus.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (U.S.Pat. 6,266,133) in view of Semba (U.S.Pat. 6,133,981), further in view of Aoki (JP-405210049A). and further in view of Arakawa (U.S.Pat. 6,356,338).

With regard to claim 9, Osakabe as modified by Semba and Aoki, lacks to show “substrate load lock chamber” and “reticle load lock chamber”. Arakawa teaches an exposure apparatus having “substrate load lock chamber” and “reticle load lock chamber” (see fig.1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the “substrate load lock chamber” and “reticle load lock chamber” as taught by Arakawa into the exposure system of Osakabe as modified by Semba and Aoki for at least the purpose of storing the substrates and reticles and keeping the substrates and reticles from being contaminated.

Response to Arguments

4. The Examiner thanks the Applicant for pointing out the typographical error on page 2 of the previous office action. Accordingly, the correction has been made.

In light of Applicant’s remarks, and upon reference to the identified passage in the specification, the objection to the drawings is vacated and the rejection to claims 1-11 under 35 U.S.C. 112, second paragraph is withdrawn.

Turning the prior art rejections, applicant’s arguments have been carefully reviewed but they are not found persuasive because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. They do not clearly point out the patentable

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novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The rejection here is made under 35 U.S.C. 103(a), therefore, the issue here is whether or not, one having ordinary skill in the art, at the time the invention was made would incorporated the teachings of cited references to come up with the present invention. As noted in the history of prosecution, Osakabe teaches an exposure apparatus having substantially all basic features of the instant claims including pressure sensors (33, 34) for monitoring the pressure inside and the pressure outside of the chamber (6) which encloses the projection optical system and a controller (35) for controlling and maintaining the pressure inside and pressure outside of the chamber (6) at a predetermined level. Semba discloses an processing system and for the purpose of preventing the contamination caused by the particles, organic solvent from the outside atmospheric may flow into the exposure apparatus, Semba teaches the pressure in the exposure apparatus (S) chamber is set higher than the pressure outside the exposure apparatus chamber. Aoki teaches an exposure apparatus and teaches correcting the characteristics of the projection optical system (23) based upon the detected pressure of the projection optical system. In addition, moving at least one refractive lens along the optical axis for the purpose of adjusting the optical characteristics of the projection optical system is well known per se. The Examiner,

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therefore fails to find arguments convincing that the claimed invention would have been unobvious to one having ordinary skill in the art in view of discussed references.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Prior Art Made of Record

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

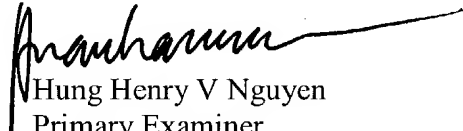
Komoriya et al (U.S.Pat. 5,025,284) teaches the pressure in the chamber which contains an exposure apparatus is maintained slightly higher than the atmospheric pressure in order to prevent dust and dirt in the atmosphere outside from entering the chamber. Komoriya further teaches a control unit which adjusts the optical characteristics of the projection optical system based on the signal detected by the detectors.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Hung Henry V Nguyen
Primary Examiner
Art Unit 2851

hvn
1/20/04